Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A digital watermarking apparatus comprising:

specifying means for specifying a line of pixel data included in received image signals;

encryption data generating means for encrypting the digital watermark and for outputting encryption data; and

mixing means for comparing an average of intensity values or color difference values of all pixels in the specified line in the received image signals with an intensity value or a color difference value of each pixel in a line adjacent to the specified line and in which the digital watermark is to be embedded, to find, for all pixels in the adjacent line, a first counter value and a second counter value, said first counter value indicating a number of pixels each of which has an intensity value or a color difference value larger than the average, said second counter value indicating a number of pixels each of which has an intensity value or a color difference value smaller than the average, for transforming the intensity value or the color difference value of each pixel in the adjacent line such that a large and small relation between the first counter value and the second counter value obtained by the comparison with the average becomes a preset large and small relation according to a first value or a second value of the encryption data from said encryption data generating means, and for outputting the received image signals as watermarked image signals.

2. (Previously Presented) The digital watermarking apparatus according to claim 1, wherein said mixing means comprises:

average calculating means for calculating the average of the intensity values or the color difference values of the pixels in the specified line of the received image signals;

counter value calculating means for comparing the average with the intensity value or the color difference value of each pixel in the adjacent line to calculate, for all pixels in the adjacent line, the first counter value and the second counter value, said first counter value indicating the number of pixels each of which has an intensity value or a color difference value larger than the average, said second counter value indicating the number of pixels each of which has an intensity value or a color difference value smaller than the average;

counter value comparing means for comparing the first counter value and the second counter value; and

transforming means for transforming the intensity values or the color difference values of all pixels in the adjacent line such that, when the value of the encryption data from said encryption generating means is the first value, said counter value comparing means gives a comparison result indicating that the first counter value is larger than the second counter value and such that, when the value of the encryption data from said encryption generating means is the second value, said counter value comparing means gives a comparison result indicating that the first counter value is smaller than the second counter value,

wherein the transformed signals are output as the watermarked image signals, the intensity value or the color difference value or each pixel in the adjacent line of the transformed signals being transformed by said transforming means according to the value of the encryption data.

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3. (Currently Amended) A digital watermarking method comprising:

a first step for specifying a line of pixel data included in received image signals;

a second step for encrypting a digital watermark and for outputting encryption data; and

a third step for comparing an average of intensity values or color difference values of all

pixels in the specified line in the received image signals with an intensity value or a color difference

value of each pixel in a line adjacent to the specified line and in which the digital watermark is to be

embedded, to find, for all pixels in the adjacent line, a first counter value and a second counter value,

said first counter value indicating a number of pixels each of which has an intensity value or a color

difference value larger than the average, said second counter value indicating a number of pixels

each of which has an intensity value or a color difference value smaller than the average, and

a fourth step for transforming the intensity value or the color difference value of each pixel in

the adjacent line such that a <u>large and small</u> relation between the first counter value and the second

counter value <u>obtained by the comparison with the average</u> becomes a preset <u>large and small</u> relation

according to a first value or a second value of the encryption data and for outputting the received

image signals as watermarked image signals.

4. (Previously Presented) The digital watermarking method according to claim 3, wherein said third

step comprises:

a fifth step for calculating the average of the intensity values or the color difference values of

the pixels in the specified line of the received image signals; and

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a sixth step for comparing the average with the intensity value or the color difference value of each pixel in the adjacent line to calculate, for all pixels in the adjacent line, the first counter value and the second counter value, said first counter value indicating the number of pixels each of which has an intensity value or a color difference value larger than the average, said second counter value indicating the number of pixels each of which has an intensity value or a color difference value smaller than the average, and

wherein said fourth step comprises:

a seventh step for comparing the first counter value and the second counter value; and

an eighth step for transforming the intensity values or the color difference values of all pixels in the adjacent line such that, when the value of the encryption data is the first value, a comparison result indicating that the first counter value is larger than the second counter value is obtained and such that, when the value of the encryption data is the second value, a comparison result indicating that the first counter value is smaller than the second counter value is obtained.

5. (Currently Amended) A digital watermark reproducing apparatus comprising:

specifying means for receiving digitally watermarked image signals as input signals and for specifying a line of pixel data, said digitally watermarked image signals being generated by transforming signals in a line adjacent to the specified line of the image signals according to a value of encryption data generated by encrypting a digital watermark;

extracting means for comparing an average of intensity values or color difference values of all pixels in the specified line in the digitally watermarked image signals with an intensity value or a color difference value of each pixel in the adjacent line to find, for all pixels in the adjacent line, a

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first counter value and a second counter value, said first counter value indicating a number of pixels

each of which has an intensity value or a color difference value larger than the average, said second

counter value indicating a number of pixels each of which has an intensity value or a color difference

value smaller than the average, and for extracting from the adjacent line the encryption data which is

determined to be a first value or a second value according to a large and small relation between the

first counter value and the second counter value obtained by the comparison with the average; and

a decrypting means for decrypting the extracted the encryption data to an original watermark

for output.

6. (Previously Presented) A digital watermark reproducing apparatus according to claim 5, wherein

said extracting means comprises:

average calculating means for calculating the average of the intensity values or the color

difference values of the pixels in the specified line of the digitally watermarked image signals;

counter value calculating means for comparing the average with the intensity value or the

color difference value of each pixel in the adjacent line to calculate, for all pixels in the adjacent line,

the first counter value and the second counter value, said first counter value indicating the number of

pixels each of which has an intensity value or a color difference value larger than the average, said

second counter value indicating the number of pixels each of which has an intensity value or a color

difference value smaller than the average;

counter value comparing means for comparing the first counter value and the second counter

value; and

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encryption data extracting means for extracting the encryption data determined to be the first value when said counter value comparing means gives a comparison result indicating that the first counter value is larger than the second counter value or for extracting the encryption data determined to be the second value when said counter value comparing means gives a comparison result indicating that the first counter value is smaller than the second counter value.

7. (Currently Amended) A digital watermark reproducing method comprising:

a first step for receiving digitally watermarked image signals as input signals and for specifying a line of pixel data, said digitally watermarked image signals being generated by transforming signals in a line adjacent to the specified line of the image signals according to a value of encryption data generated by encrypting a digital watermark;

a second step for comparing an average of intensity values or color difference values of all pixels in the specified line in the digitally watermarked image signals with an intensity value or a color difference value of each pixel in the adjacent line to find, for all pixels in the adjacent line, a first counter value and a second counter value, said first counter value indicating a number of pixels each of which has an intensity value or a color difference value larger than the average, said second counter value indicating a number of pixels each of which has an intensity value or a color difference value smaller than the average;

a third step for extracting from the adjacent line the encryption data which is determined to be a first value or a second value according to a large and small relation between the first counter value and the second counter value obtained by the comparison with the average; and

a fourth step for decrypting the extracted encryption data to an original watermark for output.

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8. (Previously Presented) A digital watermark reproducing method according to claim 7,

wherein said second step comprises:

a fifth step for calculating the average of the intensity values or the color difference values of the pixels in the specified line of the digitally watermarked image signals; and

a sixth step for comparing the average with the intensity value or the color difference value of each pixel in the adjacent line to calculate, for all pixels in the adjacent line, the first counter value and the second counter value, said first counter value indicating the number of pixels each of which has an intensity value or a color difference value larger than the average, said second counter value indicating the number of pixels each of which has an intensity value or a color difference value smaller than the average, and

wherein said third step comprises:

a seventh step for comparing the first counter value and the second counter value; and

an eighth step for extracting the encryption data determined to be the first value when said seventh step gives a comparison result indicating that the first counter value is larger than the second counter value or for extracting the encryption data determined to be the second value when said seventh step gives a comparison result indicating that the first counter value is smaller than the second counter value.

9. (Previously Presented) The digital watermarking apparatus according to claim 1, wherein said specifying means specifies an edge line of pixel data included in the received image signal.